

Application No. 09/498,303
Amendment Dated November 20, 2003
Reply to Examiner's Action of May 21, 2003

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claims 1-11 (canceled)

1 12. (Currently Amended) A method for etching oxide on a
2 semiconductor substrate, comprising the steps of:
3 producing a positive electrical charge on the oxide; and
4 subsequent to the positive electrical charge production, exposing the
5 previously positively charged oxide on the substrate to hydrofluoric acid
6 vapor and water vapor in a process chamber held at temperature and
7 pressure conditions that are controlled to form on the substrate no more than
8 a saturated monolayer of etch reactants and products produced by the vapor
9 as the oxide is etched by the vapor.

1 13. (Currently Amended) A method for etching oxide on a
2 semiconductor substrate, comprising the steps of:
3 producing a positive electrical charge on the oxide; and
4 subsequent to the positive electrical charge production, exposing the
5 previously positively charged oxide on the substrate to hydrofluoric acid
6 vapor and methanol vapor in a process chamber held at temperature and
7 pressure conditions that are controlled to form on the substrate no more than

Application No. 09/498,303
Amendment Dated November 20, 2003
Reply to Examiner's Action of May 21, 2003

8 a saturated monolayer of etch reactants and products produced by the vapor
9 as the oxide is etched by the vapor.

1 14. (Currently Amended) A method for etching oxide on a
2 semiconductor substrate, comprising the steps of:
3 producing a positive electrical charge on the oxide; and
4 subsequent to the positive electrical charge production, exposing the
5 previously positively charged oxide on the substrate to hydrofluoric acid
6 vapor and isopropyl alcohol vapor in a process chamber held at temperature
7 and pressure conditions that are controlled to form on the substrate no more
8 than a saturated monolayer of etch reactants and products produced by the
9 vapor as the oxide is etched by the vapor.

1 15. (Previously Presented) The method of any of claims 12, 13, or 14
2 wherein the process chamber temperature and pressure conditions are
3 controlled to form on the substrate no more than a sub-monolayer of etch
4 reactants and products produced by the vapor as the oxide is etched by the
5 vapor.

1 16. (Original) The method of any of claims 12, 13, or 14 wherein the
2 positive electrical charge is produced on the oxide by exposure of the oxide to
3 an electron beam.

1 17. (Currently Amended) The method of any of claims 12, 13, or 14
2 wherein the positive electrical charge is produced on the oxide by exposure of
3 the oxide to ultraviolet light through an electrically-biased metallic screen.

Application No. 09/498,303
Amendment Dated November 20, 2003
Reply to Examiner's Action of May 21, 2003

1 18. (Currently Amended) The method of any of claims 12, 13, or 14
2 wherein the positive electrical charge is produced on the oxide by exposure of
3 the oxide to a plasma environment wherein the substrate is capacitively
4 biased by a negative-polarity DC voltage.

1 19. (Currently Amended) A method for etching oxide on a
2 semiconductor substrate, comprising the steps of:
3 producing a negative electrical charge on the oxide; and
4 subsequent to the negative electrical charge production, exposing the
5 previously negatively electrically charged oxide on the substrate to
6 hydrofluoric acid vapor and water vapor in a process chamber held at
7 temperature and pressure conditions that are controlled to form on the
8 substrate no more than a multilayer of etch reactants and products produced
9 by the vapor as the oxide is etched by the vapor.

1 20. (Currently Amended) The method of claim 19 wherein the negative
2 electrical charge is produced on the oxide by exposure of the oxide to a plasma
3 environment wherein the wherein the substrate is capacitively biased by a
4 RF voltage.

1 21. (Currently Amended) The method of claim 19 wherein the negative
2 electrical charge is produced on the oxide by exposure of the oxide to a plasma
3 environment wherein the substrate is capacitively biased by a positive-
4 polarity DC voltage.

Claims 22-24 (Canceled)